OpenEye®

Outdoor Speed Dome Camera

Installation Manual

Camera

CM-512

Accessories

CA-510G
CA-510W
CA-510C
CA-510P25
CA-510P50
CA-510PML
CA-510PMS
CA-510PA25
CA-510PA50

www.openeye.net

Outdoor High-Speed Dome Camera (CM-512)

Installation Manual

Manual Edition 31515AB – AUGUST 2013

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OPENEYE

Liberty Lake, WA ● U.S.A.

Important Safeguards

1. **Read Instructions**
   Read all of the safety and operating instructions before using the product.
2. **Retain Instructions**
   Save these instructions for future reference.
3. **Attachments / Accessories**
   Do not use attachments or accessories unless recommended by the appliance manufacturer as they may cause hazards, damage product and void warranty.
4. **Installation**
   Do not place or mount this product in or on an unstable or improperly supported location. Improperly installed product may fall, causing serious injury to a child or adult, and damage to the product. Use only with a mounting device recommended by the manufacturer, or sold with the product. To insure proper mounting, follow the manufacturer's instructions and use only mounting accessories recommended by manufacturer.
5. **Power source**
   This product should be operated only from the type of power source indicated on the marking label.

Precautions

Operating

- Before using, make sure power supply and others are properly connected.
- While operating, if any abnormal condition or malfunction is observed, stop using the camera immediately and then contact your local dealer.

Handling

- Do not disassemble or tamper with parts inside the camera.
- Do not drop or subject the camera to shock and vibration as this can damage camera.
- Do not block the cooling holes on the bracket. This camera has a cooling fan inside the housing. Blocking the cooling holes will cause heat to build up and cause malfunction.
- Care must be taken when you clean the clear dome cover. Scratches and dust will ruin the image quality of your camera. Do not use strong or abrasive detergents when cleaning the camera body. Use a dry cloth to clean the camera when it is dirty. In case the dirt is hard to remove, use a mild detergent and wipe the camera gently.

Installation and Storage

- Do not install the camera in areas of extreme temperatures in excess of the allowable range. (-58°F ~ 122°F / -50°C ~ 50°C)
- Avoid installing in humid or dusty places. The relative humidity must be below 90%.
- Avoid installing in places where radiation is present.
- Avoid installing in places where there are strong magnetic fields and electric signals.
- Avoid installing in places where the camera would be subject to strong vibrations.
- Never face the camera toward the sun. Do not aim at bright objects. Whether the camera is in use or not, never aim it at the sun or other extremely bright objects. Otherwise the image may be smeared and sensor may be damaged.

Regulation

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste in accordance with Directive 2002/96/EC. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By proper waste handling of this product you ensure that it has no negative consequences for the environment and human health, which could otherwise be caused if this product is thrown into the garbage bin. The recycling of materials will help to conserve natural resources.

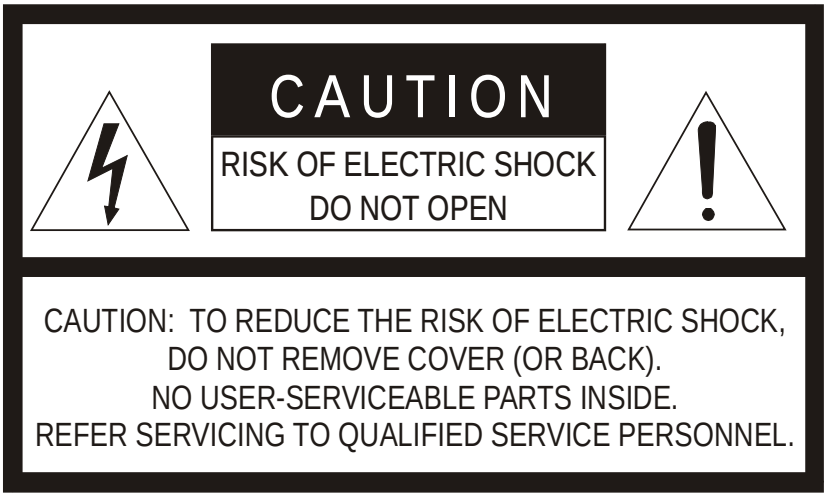
For more details information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Compliance is evidenced by written declaration from our suppliers, assuring that any potential trace contamination levels of restricted substances are below the maximum level set by EU Directive 2002/95/EC, or are exempted due to their application.

Warning

DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE.
DO NOT OPEN THE CABINET.
REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

Caution


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Standard Warranty

OpenEye warrants all new products to be free from defects in workmanship and material under normal use for a period of two years after the date of purchase. Any defective product that falls under this warranty will, at Openeye's discretion, be repaired or replaced at no additional charge. OpenEye may elect to replace defective products with new or factory-reconditioned products of equal or greater value. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Exceptions to this are listed below.

- Three years on all Digital Recorders
- Three years on all fixed cameras.

All products shall be covered by a one-year advance replacement warranty.*

OpenEye will warrant all otherwise out-of-warranty replacement parts and repairs for 90 days from the date of OpenEye shipment.

The above warranty is the sole warranty made by OpenEye and is in lieu of all other warranties by OpenEye express and implied, including without limitation the warranties of merchant ability and fitness for a particular purpose. Under no circumstances will OpenEye be liable for any consequential, incidental, special, or exemplary damages arising out of or connected with the sale, delivery, use, or performance of the product, even if OpenEye is apprised of the likelihood of such damages occurring. In no event shall OpenEye liability exceed the purchase price of the product.

This warranty gives you specific legal right and you may also have other rights which may vary from state to state or country to country.

**Requires corresponding security deposit. Advanced Replacement is limited to components only outside of the USA and Canada.*

For the most up-to-date information, visit www.openeye.net.

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INTRODUCTION

OVERVIEW

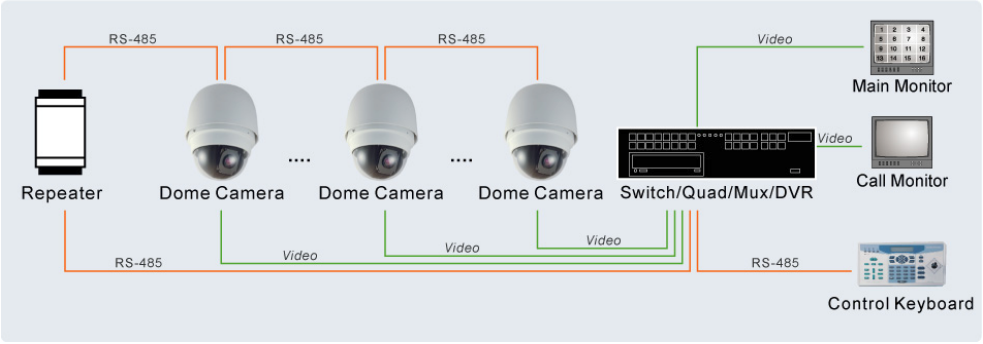
With a weather resistant design, the Integrated High Speed Dome Camera is applicable for outdoor installations. The dome camera supports all-in-one cabling for easy installation and can be integrated with CCTV products such as reocrders, control keyboards, and CCTV accessories for a total surveillance solution. In addition, a large set of built-in protocols provides connectivity to other surveillance systems. The built-in protocols include OPTIX 3, Pelco, VCL, Philips, AD-422, and many others.

GENERAL OPERATION REQUIREMENTS

A minimum of one control device is required for operation, such as a control keyboard, or a recorder. The CM-512 includes a built-in receiver that decodes commands from a control device.

Connect dome cameras to other devices, as shown in the diagram below, to complete a video surveillance system.

System Configuration



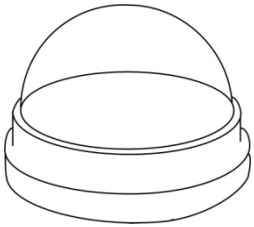
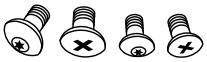
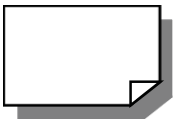
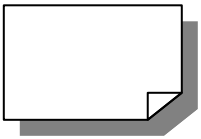
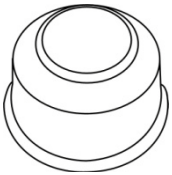
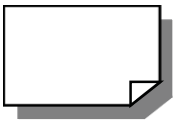
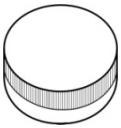
Note To extend the network distance up to 1.2 km (4000 feet) and to protect the connected devices, OpenEye recommends placing a repeater at the mid-point. However, a repeater may be needed with network distances less than 1.2 km if the cables used are not CAT 5, 24-gauge cables. Refer to the repeater's manual for detailed information.

NOTES:

GETTING STARTED

BOX CONTENTS

Before proceeding, please check that the box contains the items listed here. If any item is missing or has defects, DO NOT install or operate the product. Contact your dealer for assistance.

CM-512 Camera	 **Optical Cover**	 **Screws (x4)**
 **Quick Start Guide**	 **User Manual**	 **Waterproof Gasket**
 **Installation Manual**		 **Lubricant**

DOME SETUP AND CABLE CONNECTION

Before installing or connecting the dome camera, please refer to this section and complete preparations for dome setup and all switch settings.

Preparations for Dome Setup

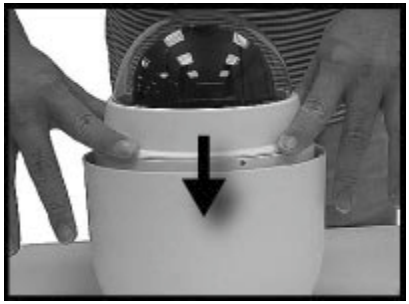
The following installation procedure is for the outdoor dome equipped with the sunshield housing. Please follow the steps below to complete dome housing installation.

1. Unpack the dome package and take out the dome body.

2. Remove the protective cover and PE sheet.
3. Attach the dome cover to the camera body. Before doing that, apply some lubricant to the waterproof gasket. This helps keep moisture out of the dome.

Note The protrusion on the cover must alight with one of the four holes on the camera body.

4. Using both hands, gently press the dome cover. Do not press the cover from the dome.

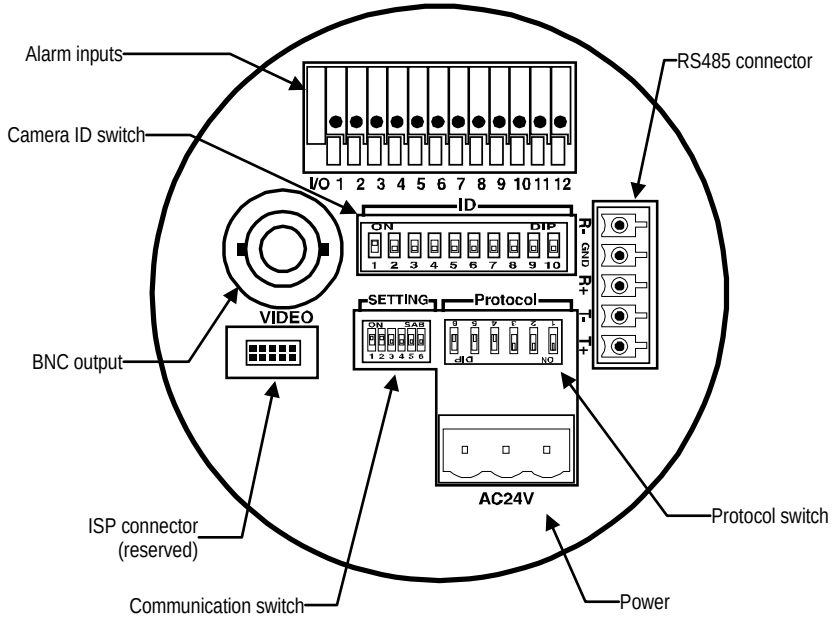


5. Use screws to affix the dome cover to the body.
6. Set the switches located on the bottom of the camera. Refer to the user manual for information about various switch settings.

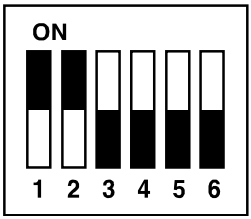
Dome Camera Setup

Before connecting the dome camera to other CCTV devices, please complete the camera ID and communication switch settings. These switches are located on the bottom of the dome camera.

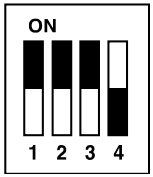
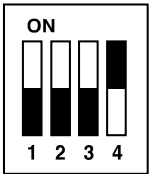
Switch Definitions



RS-485 Switch Setting

Switch		
	SW1	RS-485 Setting
	SW2	
	SW3	Termination
	SW4	Line Lock
	SW5	System Initialization
	SW6	Reserved

RS-485 is the interface that the dome camera uses to communicate with its control device; for this reason, the RS-485 setup of the dome and the control device must be the same. The RS-485 default setting is half-duplex (see the diagram right). Do not change the default setting without a qualified specialist or supplier's notice.

RS-485 Setting	
Half-duplex	Full -duplex
	

Camera ID Setting

Assign an ID number to your camera if there is more than one camera in the network. The camera ID is set up using the camera ID switch on the back plate of the camera.

For switch configuration details, please refer to Appendix B in the User Manual.

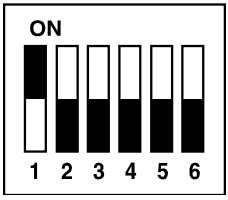
Note No two cameras should have the same ID, or communication conflict may occur.

Dome Control Protocol Setting

Define the protocol you are going to use based on the devices of your surveillance system. Generally, use one protocol even if the devices are provided by different manufacturers. Use the switch to set your dome control protocol and the baud rate. Refer to the table below and turn the arrow to choose a protocol for your speed dome.

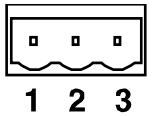
Protocol	Baud Rate Setting	Switch Setting					
		1	2	3	4	5	6
VCL	**9600**	OFF	OFF	OFF	OFF	OFF	OFF
Pelco D	**2400**	ON	OFF	OFF	OFF	OFF	OFF
Pelco P	**4800**	OFF	ON	OFF	OFF	OFF	OFF
Chiper	**9600**	OFF	OFF	ON	OFF	OFF	OFF
Philips	**9600**	ON	OFF	ON	OFF	OFF	OFF
OPTIX 3	**9600**	ON	ON	ON	OFF	OFF	OFF
AD422	**4800**	OFF	OFF	OFF	ON	OFF	OFF
DP P	**9600**	ON	OFF	OFF	ON	OFF	OFF
Pelco D	**4800**	ON	ON	OFF	ON	OFF	OFF
Pelco D	**9600**	OFF	OFF	ON	ON	OFF	OFF
Pelco P	**2400**	ON	OFF	ON	ON	OFF	OFF
Pelco P	**9600**	OFF	ON	ON	ON	OFF	OFF
JVC	**9600**	ON	ON	ON	ON	OFF	OFF
Kalatel-485	**9600**	ON	OFF	ON	OFF	ON	OFF
Kalatel-422	**4800**	OFF	ON	ON	OFF	ON	OFF

Example To set the protocol Pelco D at a 2400 baud rate, the protocol switch should be set as shown..



Power Connector

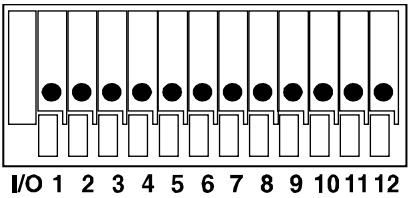
Refer to this diagram for power connector definition before wiring.



1	AC IN +
2	Frame GND
3	AC IN -

Apply Alarm I/O

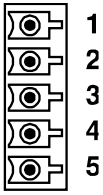
The CM-512 supports 4 digital alarm inputs and 2 digital alarm outputs. Please make sure the alarm connections are properly wired before starting to configure alarm-related settings. Please refer to the pin definition table for alarm system wiring.



Pin	Definition	Pin	Definition
1	Alarm Out NO 1	7	Alarm Out COM 2
2	Alarm Out NC 1	8	GND
3	Alarm Out COM 1	9	Alarm In 4
4	GND	10	Alarm In 3
5	Alarm Out NO 2	11	Alarm In 2
6	Alarm Out CN 2	12	Alarm In 2

RS-485 Connector Definition

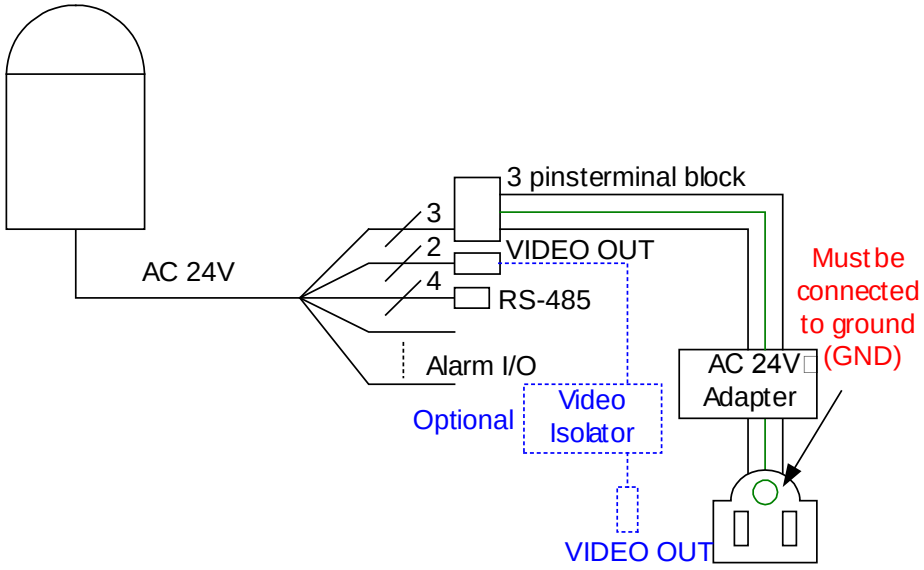
The dome camera uses the RS-485 interface to communicate with a connected control device. Connect a control keyboard to the speed dome using the terminal block. OpenEye recommends using CAT 5 cables for RS-485 communication with a maximum length of 4000 feet (1219 meters) for 24-gauge wire. If the total cable length exceeds 4000 feet, use a repeater to maintain the signals. Refer to the table below for pin definition and wiring.

Connector	Pin Number	Definition
	1	R-
	2	GND
	3	R+
	4	T-
	5	T+

Grounding Recommendation

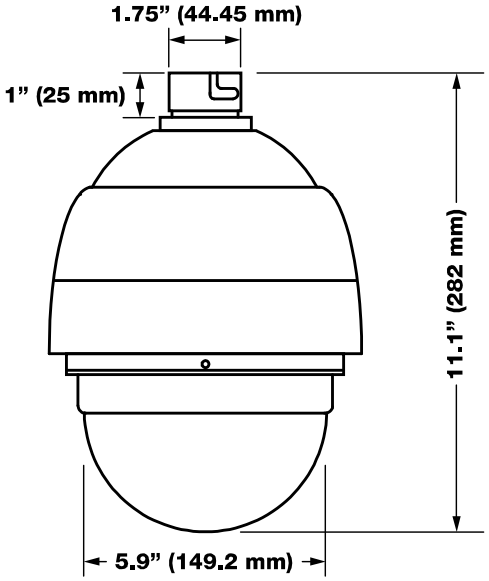
The GND wire must be directly connected to the middle pin of the AC24V power connector. Failure to connect the ground can cause damage and failure of the camera and may void the warranty.

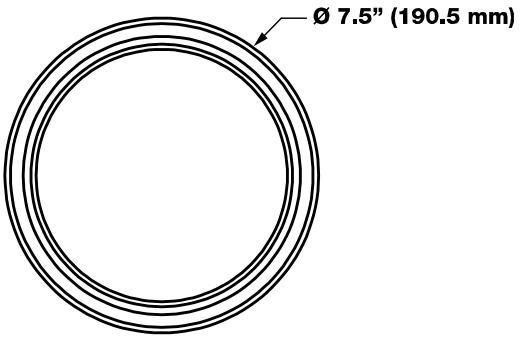
If the connection of the GND wire causes video noise, use a video isolator. This is only necessary in some situations.



DOME DIMENSIONS

The dome dimensions are Ø172 x 228.71mm (6.77 x 9.0 inches) and Ø191.97 x 282.11mm (7.5 x 11.1 inches) with the sunshield.





OPTIONAL ACCESSORIES

Dome Camera Accessories

Transparent/Smoke Cover
Part Number: CA-510-DT

Mounting Accessories

Wall Mount Bracket (w/ Anti Drop)
Part Number: CA-510W

Long Wall Mount Bracket
(w/ Anti Drop)
Part Number: CA-510WL

50 cm Pole
Part Number: CA-510P50

25 cm Pole
Part Number: CA-510P25

Corner Mounting Plate
Part Number: CA-510C

Small Pole Mount
Part Number: CA-510PMS

Large Pole Mount
Part Number: CA-510PML

1 ¼" Threaded Adapter
Part Number: CA-510PA25

1 ½" Threaded Adapter
Part Number: CA-510PA50

Ceiling Mounting with Pole

The pole is available in two lengths: 25 cm and 30 cm.

Items Needed:

- Dome Camera
- Ceiling Pole Accessory
- Waterproof Gasket (supplied)
- Screws and Anchors appropriate for the mounting surface (not supplied)

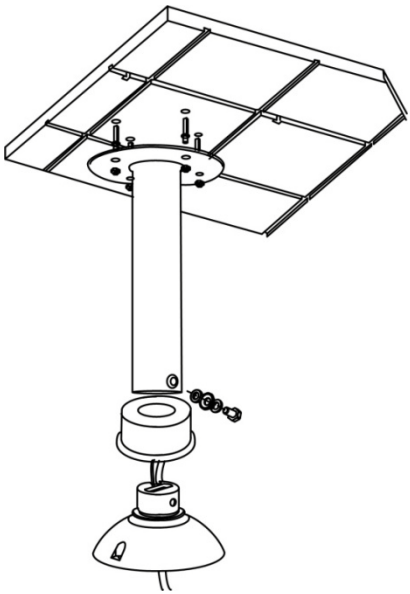
Tools Needed:

- Drill
- Screwdriver

Installation Steps:

Note Ensure that the ceiling can support the weight of the dome camera and the ceiling pole.

1. Cut a cable access hole in the ceiling.
2. Attach the ceiling pole to the ceiling with the appropriate screws and screw anchors (not provided).
3. Attach the waterproof gasket to the Ceiling Pole.
4. Thread the cables through the ceiling pole and the top holder



Note After threading the cables through the tube, block the cable entry hole with the supplied sponges to prevent insects from entering the tube.

5. Attach the top holder to the ceiling pole with the supplied screws and washers and adjust the gasket to the junction of the ceiling pole and the top holder.
6. Connect the cables to the dome camera.
7. Attach the dome to the top holder and secure them with the supplied screw.

Wall Mounting with Wall Mount Bracket

Items Needed:

- Dome Camera
- Wall Mount Bracket or Long Wall Mount Bracket
- Waterproof Gasket (supplied)
- Screws and Anchors appropriate for the mounting surface (not supplied)

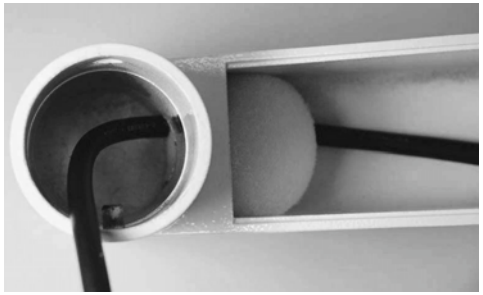
Tools Needed:

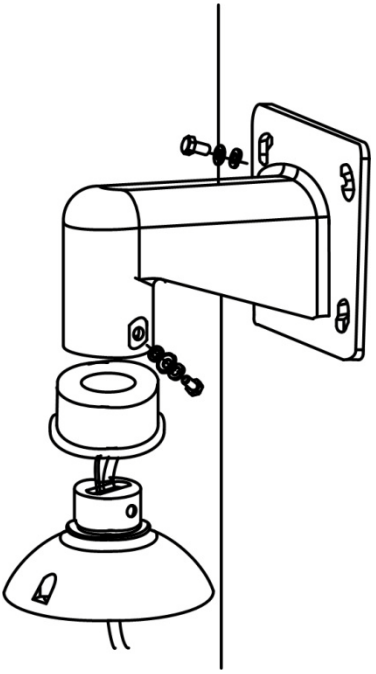
- Drill
- Screwdriver

Installation:

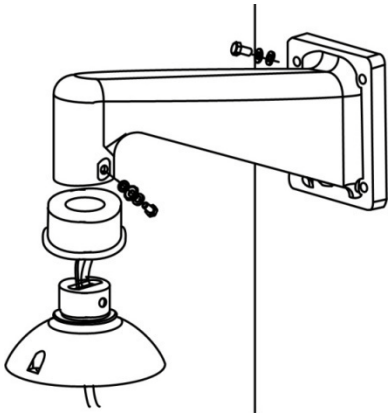
1. Cut a cable access hole on the wall. Cables can also be threaded through the cable entry knockout on the tube if desired.
2. Thread the cables through the wall mount bracket.

3. Block the cable entry hole with the supplied sponge.





4. Attach the wall mount bracket to the wall with the appropriate screws and screw anchors (not provided).
5. Attach the waterproof gasket to the wall mount bracket.
6. Thread the cables through the top holder and attach the dome to the wall mount bracket with the supplied screws and washers.
7. Connect the cables to the dome camera.
8. Attach the dome to the top holder and secure them with the supplied screw.



Wall Mounting with Corner Mount

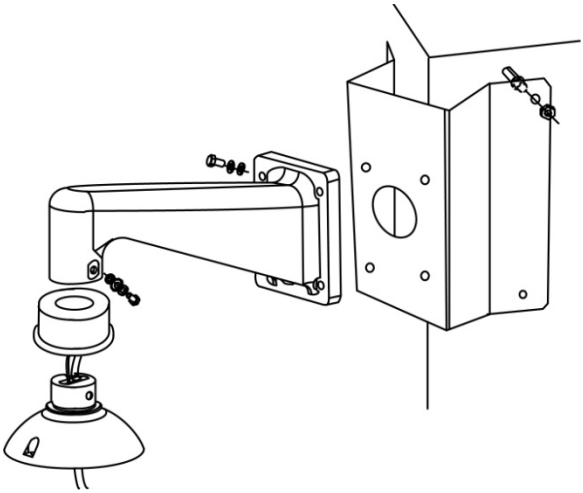
The corner mount must be used in conjunction with the wall mount bracket.

Items Needed:

- Dome Camera
- Wall Mount Bracket Accessory
- Corner Mounting Plate
- Waterproof Gasket (supplied)
- Screws and Anchors appropriate for the mounting surface (not supplied)

Tools Needed:

- Drill
- Screwdriver



Installation:

1. Cut a cable access hole on the wall. Cables can also be threaded through the cable entry knockout on the bracket if desired.
2. Secure the corner mount plate on the corner wall with the appropriate screws and screw anchors.
3. Attach the wall mount bracket to the corner mount plate with the supplied screws and washers.
4. Thread the cables through wall mount bracket and the top holder.
5. Block the cable entry hole with the supplied sponge.
6. Attach the waterproof gasket to the wall mount bracket.
7. Attach the top holder to the wall mount bracket with the supplied screws and washers and adjust the gasket to the junction of the wall mount bracket and the top holder.
8. Connect the cables to the dome camera.
9. Attach the dome to the top holder and secure them with the supplied screw.

Pole Mounting

The dome can be mounted on a pole with the small or large direct mounting assembly and a wall mount bracket**.**

Items Needed:

- Dome Camera
- Wall Mount Bracket Accessory
- Small/Large Pole Mount Accessory
- Stainless Steel Straps
- Waterproof Gasket (supplied)

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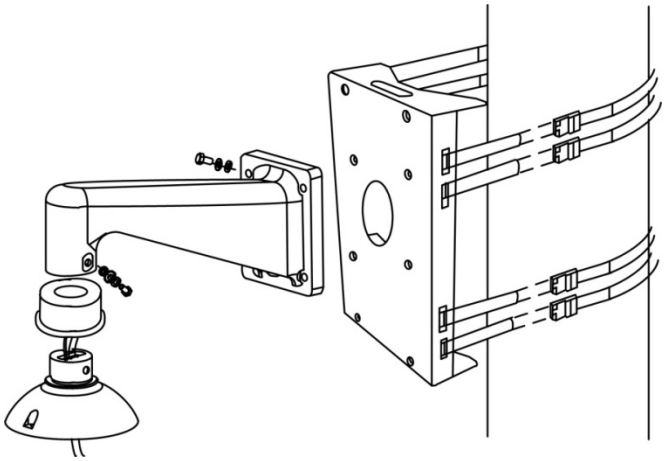
Tools Needed:

- Stainless Steel Strap Cutter

Screwdriver

Installation Steps:



1. Fasten the small/large pole mount to the pole with stainless steel straps.
2. Attach the wall mount bracket to the pole mount with the supplied screws and washers.
3. Attach the waterproof gasket to the wall mount bracket.
4. Thread the cables through the wall mount and the top holder.
5. Block the cable entry hole with the supplied sponge.
6. Attach the top holder to the wall mount with the supplied screws and washers and adjust the gasket to the junction of the wall mount and the top holder.
7. Connect the cables to the dome camera.
8. Attach the dome to the top holder and secure them with the supplied screw.

SPECIFICATIONS

CAMERA SPECIFICATIONS

Model	CM-512
Image Sensor	1/4” Sony CCD
IP Rating	IP66
Type / Format	NTCS
Wide Dynamic Range	Yes
Minimum Illumination @ 50IRE	0.4 Lux (B/W) / 1 Lux (Color) (DSS OFF)
Minimum Illumination @ 30IRE	0.2 Lux (B/W) / 0.6 Lux (Color) (DSS OFF)
Day / Night	Yes (True Day / Night)
Horizontal TVL	650 TVL
S/N Ratio	>50dB (AGC Off)
Focal Length	F1.6 ~ F4.5, 3.4 mm ~ 122.4 mm
Iris Control	Auto / Manual
Synchronization	Internal / Line Lock
Video Output	1.0 Vp-p / 75Ω, BNC
White Balance	Auto / Manual
Auto White Balance Range	20000 K ~ 10000 K
Backlight Compensation	On / Off
Auto Gain Control	Auto / Manual
Operating Temperature	-40°F ~ 122°F (-40°C ~ 50°C)
Heater	Yes
Power Consumption	50W Max
Rated Amperage	2.08A

Model	CM-512
Input Voltage	24vAC ± 10%
Weight	5.11 lbs (2.3 kg)
Dimensions	Ø7.5" (190.5mm) x H: 11.1" (282mm)
Housing / Dome Cover	White / Clear

PTZ SPECIFICATIONS

Model	CM-512 Outdoor Speed Dome
Built-in Protocol	Optix III, Pelco D & P, VCL
Optical Zoom	36X
Pan/Tilt Range	360° Endless / -10° ~ 190°
Presets	256
Preset Accuracy	± 0.225°
Preset Speed	5° ~ 400°/sec.
Pattern	8
Tour (Group)	8
Auto Scan	4
Privacy Mask	16
Zone Title	16
Home Function	Preset, Pattern, Tour, Autoscan
Auto Flip	Digital / Mechanical / Off
Digital Slow Shutter	On / Off
Focus Mode	Auto / Manual
Alarm Input	8
Alarm Output	1

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